Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Numbering Policies for Modern Communications	)	WC Docket No. 13-97
	)	
IP-Enabled Services	)	WC Docket No. 04-36
	)	
Telephone Number Requirements for IP-Enabled Service Providers	)	WC Docket No. 07-243
	)	
Numbering Resource Optimization	)	CC Docket No. 99-200
	)	
Framework for Next Generation 911 Deployment	)	PS Docket No. 10-255

PETITION FOR WAIVER

I. INTRODUCTION AND SUMMARY

Pursuant to 47 C.F.R. § 1.3, Onvoy Spectrum, LLC (Onvoy Spectrum) respectfully requests that the Commission exercise its authority to waive certain of its rules imposing requirements on applicants for initial numbering services, as set forth in 47 C.F.R. § 52.15(g)(2), for good cause to the extent necessary. This request serves the public interest because Onvoy has exhausted all other reasonable means to comply with the rules, and most importantly, grant of the waiver will *improve* public safety by allowing an innovative solution to be offered that will enable over-the-top (OTT) mobile providers for the first time to offer consumers vitally important 9-1-1 services.

More than 30 million Americans today are using VoIP capability to communicate to and from the public switched telephone network (PSTN).[1] The Commission has been clear that commercial mobile radio service (CMRS) providers and entities providing two-way PSTN-interconnected VoIP must comply with the Commission's rules on 9-1-1.[2] When a consumer using such a VoIP app seeks to call 9-1-1 on their mobile phone, the native capability in the CMRS device handles the 9-1-1 call. However, if a consumer is on a non-voice device (or using a CMRS device in a data-only mode), such as a tablet or a laptop, there is no emergency solution.[3] And this gap in emergency services is widening: the number of people using OTT mobile apps is growing steadily, with the number of app downloads projected to increase to 270 billion worldwide by 2017.[4] Just as some users are "cutting the cord" of their cable television services, others are increasingly "cutting the wireless cord" and turning to WiFi-only devices, or CMRS devices in a WiFi-only mode.[5] This growth in mobile communications taking place on

[1] *See Countries By Number of Voice Over Internet Protocol Subscribers in Q1 2013 (in millions)*, Statista.com, http://www.statista.com/statistics/236824/number-of-voip-subscribers-by-leading-countries/ (34.21 million VoIP subscribers in the United States as of Q1 2013).

[2] FCC rules define "interconnected VoIP service" as a service that "(1) Enables real-time two-way voice communications; (2) Requires a broadband connection from the user's location; (3) Requires Internet protocol-compatible customer premises equipment (CPE); and (4) Permits users generally to receive calls that originate on the public switched telephone network and to terminate calls to the public switched telephone network." 47 C.F.R. § 9.3; *see also* 47 C.F.R. § 20.18(a) (FCC rules are applicable to CMRS providers that "offer real-time, two way switched voice service that is interconnected with the public switched network.").

[3] The terms "non-voice" and "data-only" are used interchangeably in this petition to refer to devices that do not have any CMRS capability or are being used in a non-CMRS capacity.

[4] *See* Niall McCarthy, *Mobile App Usage By the Numbers*, Forbes.com, http://www.forbes.com/sites/niallmccarthy/2014/10/29/mobile-app-usage-by-the-numbers-infographic/#361e2b52416b (Oct. 29, 2014).

[5] *See* Thomas Gryta, *Will Cord Cutting Come to the Cellphone*, Wall Street Journal (Mar. 29, 2016), http://blogs.wsj.com/digits/2016/03/29/tmobile/ ("Much like cord cutters willing to drop their pay-TV services and use broadband to stream video from Netflix or services like SlingTV, T-Mobile is making it possible for customers to 'cut the cord' on cellphone calling and get by with texting or relying on services like Microsoft Skype, Facebook WhatsApp, or Apple's (continued…)

non-voice devices means that the problem of an emergency solution for these devices will demand greater attention. Onvoy Spectrum seeks a waiver of a Commission requirement that serves no purpose with respect to the narrow use case described herein because the requirement is inapplicable to the technological means by which Onvoy Spectrum would provide a 9-1-1 solution for data-only devices. Granting this waiver benefits the public because it would enable an innovative technology solution to bring the essential public safety benefits of 9-1-1 to those millions of Americans who use data-only mobile devices, and the prerequisites for a waiver described below ensure that the Commission will not be inundated with such requests.

II. HOW A MOBILE 911 SOLUTION CAN BE DELIVERED TO DATA-ONLY DEVICES USING OTT VoIP

A. Description of Call Flow

Onvoy Spectrum is a wholly owned subsidiary of Onvoy, LLC, which has provided wholesale telecommunications services since 1988. Onvoy Spectrum holds an FCC license to use spectrum at 3650–3700 MHz to register individual fixed and base stations for wireless operations, although this spectrum is not being used for the 9-1-1 solution described below.[6] Onvoy, LLC provides primarily wholesale local exchange and long distance services, switched access, transit, and other services to carriers and communications providers. As such, Onvoy,

---

Facetime for communications."). Illustrating this trend, Amazon's latest line of Fire Tablets does not even include models with CMRS connectivity. *Compare* Fire Tablet, Amazon.com, https://www.amazon.com/Amazon-Fire-7-Inch-Tablet-8GB/dp/B00TSUGXKE (4G Connectivity listed as "N/A"), *with* Fire Tablet, Amazon.com, https://www.amazon.com/Kindle-Fire-4G-LTE/dp/B008GFRDL0 (4G Connectivity listed as "4G LTE 10 band wireless modem with HSPA+, HSDPA, and EDGE/GPRS fallback"). *See also* Patrick McGeehan, N*ew Yorkers Greet the Arrival of Wi-Fi Kiosks With Panic, Skepticism and Relief*, New York Times (July 27, 2016), http://www.nytimes.com/2016/07/27/nyregion/link-nyc-wi-fi-kiosks.html?ref=technology (reporting on 7,500 Wi-Fi hotspots that are being built throughout every neighborhood in New York City).

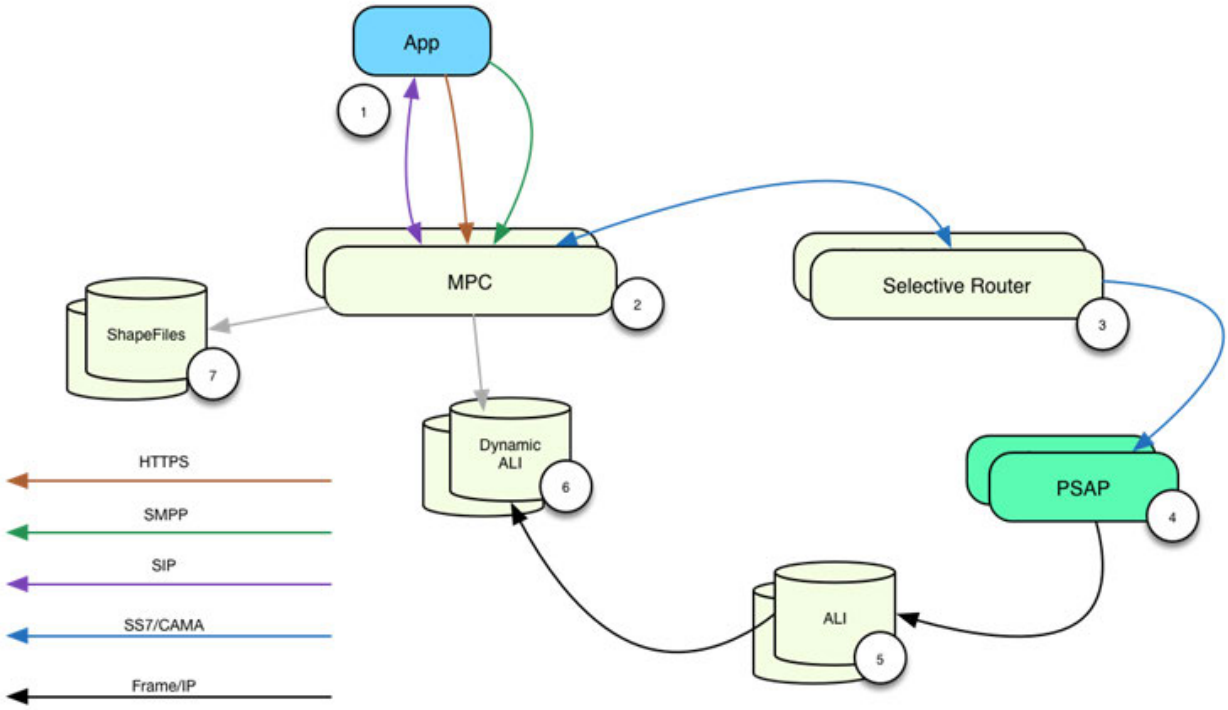
[6] *See* 3650-3700 MHz License - WQVK773 - Onvoy Spectrum, LLC, http://wireless2.fcc.gov/UlsApp/UlsSearch/license.jsp?licKey=3679137.

LLC and its affiliates hold State certificates of public convenience and necessity (CPCN) in all fifty States. Onvoy Spectrum or an affiliate will have interconnection agreements in place with carriers in every State in which it would offer this service. In the proposed solution, Onvoy Spectrum anticipates that it will either provide the services directly to wholesale customers or provide the services solely to Onvoy, LLC, which will in turn provide the 9-1-1 services to its customers and their end users. In connection with offering this 9-1-1 service, Onvoy Spectrum would be obligated to register with applicable State authorities as a provider of wireless services. Onvoy Spectrum also currently connects to the Selective Routers directly and indirectly.

Currently, the millions of Americans using non-voice devices do not have a reliable means of reaching 9-1-1, and the PSAPs do not have a reliable way of ascertaining those users' locations. Onvoy Spectrum's solution would not be a substitute for the existing 9-1-1 system using smartphones and other connected devices. Thus, the proposed solution would not bypass the native 9-1-1 device capability if that is available. In other words, when a device has CMRS capability, and is able to connect to a cellular network, calls to 9-1-1 would reach the PSAP via CMRS in exactly the same fashion that they do today.[7] But for those devices depending on Wi-Fi for connectivity, Onvoy Spectrum's solution would connect those devices to the existing 9-1-1 system for the first time. The following diagram illustrates this solution for the country's

[7] NENA's white paper on 9-1-1 apps notes that "it is imperative that new communications services or technologies that allow users to speak, text, or otherwise communicate with others are able to interoperate with the legacy E9-1-1 and the new NG9-1-1 systems in a reliable, seamless manner." NENA: The 9-1-1 Association & The Association of Public-Safety Communications Officials, *Public Safety Considerations for Smartphone App Developers*, at 3 (2012), https://c.ymcdn.com/sites/www.nena.org/resource/resmgr/Docs/Smartphone_Apps_Consideratio.pdf [hereinafter NENA White Paper]. Because Onvoy Spectrum's solution is easily extensible and designed on top of the existing system, it meets this imperative by interoperating with both legacy and next-generation 9-1-1 systems.

emergency services:



At element 1 of the diagram, an emergency call comes in from the OTT provider, or "App." The call comes into Onvoy Spectrum's Mobile Positioning Center (MPC) at element 2, which receives both the call and location information from the device in parallel. In real-time, the MPC queries Onvoy Spectrum's databases at elements 6 (which contains dynamic Automatic Location Identification (ALI)) and 7 (which provides a representation of the boundaries of a specific PSAP) of the diagram and then selects a pseudo-ANI (*p*-ANI) previously assigned by Neustar, Inc. (Neustar) to Onvoy Spectrum.[8] The MPC then sends the *p*-ANI to the Selective Router at element 3, which in turn routes the call to the appropriate PSAP at element 4. The

[8] A *p*-ANI is a 10-digit number that is used in place of Automatic Number Identification (ANI) for E9-1-1 call routing and the delivery of dynamic ALI information. *See* Intrado Communications Inc., *Glossary of Terms and Definition*, http://communications.intrado.com/assets/documents/IEN_Glossary.pdf. As described below, Neustar assigns *p*-ANIs pursuant to its Commission-assigned role as the permanent *p*-ANI Administrator.

PSAP then performs a standard ALI query using the *p*-ANI. This ALI query returns location information as stored in or provided dynamically by the Onvoy Spectrum ALI.

Prior to routing any calls to the PSAP, Onvoy Spectrum populates an ALI shell record, which indicates to the ALI provider that the *p*-ANI does not point to a true record, but is rather a shell that points to the Onvoy Spectrum hosted ALI. Onvoy Spectrum's system derives location information on a real-time, continuous basis from the originating App using technologies such as GPS, beacons, and other third-party location services. Onvoy Spectrum's solution therefore provides a Phase II-accurate initial location but can then repeatedly receive updates from the App and route updated and more accurate location information to the PSAP via the standard Phase II wireless "rebid" mechanism. Onvoy Spectrum's solution enables this because the PSAP's Customer Provided Equipment (CPE) continues to query Onvoy Spectrum's Dynamic ALI (element 6 in the diagram above) at fixed intervals (typically 30-90 seconds) throughout the call. This functionality is particularly important for mobile devices, where an initial location may not be accurate (or may become inaccurate if the caller moves) but can grow more accurate over time as the user moves or as the device has more time to determine a precise location.

It bears mention that this proposed solution could use VoIP *p*-ANIs in some areas, but that approach has several flaws. First, VoIP is by definition associated with a pre-configured address, as opposed to a precise latitude/longitude location, which is not feasible in a mobile context where a device may be located in the middle of a road. Second, not all PSAPs that accept VoIP *p*-ANIs support the process above of rebidding by which the location of a mobile device is regularly updated. And third, the use of VoIP *p*-ANIs requires significant engagement, education, and training for the PSAP staff. By contrast, a wireless *p*-ANI can enter the PSAP

system without the need for additional work or equipment by the PSAP staff and will yield highly accurate location results for mobile devices.

B. Recent Trial Tests Establish That OTT Mobile Devices Can Be Connected to PSAPs

Onvoy Spectrum has succesfully completed testing of the above process with PSAPs in three Nebraska counties. The attached declaration details the results of the trial tests conducted by Onvoy Spectrum.[9] A call from a data-only device running a VoIP application successfully placed an emergency call to the Onvoy Spectrum MPC. Onvoy Spectrum routed that call using location data provided in the call stream to the correct PSAP using a *p*-ANI previously assigned to Onvoy Spectrum by Neustar.[10] The PSAP succesfully received the call as a Phase II Wireless compliant call and performed an ALI lookup. The location data obtained by the PSAP CPE matched the location data provided by the device. The PSAP CPE also succesfully performed a rebid to the Onvoy Spectrum dynamic ALI to obtain updated location data. From the PSAP operator's perspective, the call flow was indistinguishable from a normal Phase II Wireless emergency call (other than real-time location data instead of tower information) and the PSAP operator did not need to take any steps beyond normal call processing to handle the emergency call.

And, as detailed in the attached declaration, Onvoy Spectrum is in the process of implementing additional testing in Minnesota, Texas, and other States. Onvoy Spectrum is working with emergency services authorities in these States, in addition to local PSAPs, to

[9] *See* Nelson Declaration (Exhibit A).

[10] To satisfy the requirements under 47 C.F.R. § 52.15(g)(2), Onvoy Spectrum registered a cellular tower within the jurisdiction where the test occurred, but did not actually build the tower. Onvoy Spectrum was therefore able to retrieve a *p*-ANI from Neustar for testing purposes, which allowed Onvoy Spectrum to route the call to the appropriate PSAP. Without access to a *p*-ANI from Neustar, Onvoy Spectrum cannot route the call to the appropriate PSAP.

ensure that Onvoy Spectrum's solution is tailored to meet local needs and provide robust, secure, and reliable 9-1-1 services for mobile devices that currently are not connected to 9-1-1.[11] Onvoy Spectrum is also engaging with representatives from NENA, APCO, and NASNA, and has briefed and solicited feedback from each of them on its proposed 9-1-1 solution.

II. THE COMMISSION SHOULD GRANT A WAIVER TO THE EXTENT NECESSARY OF THE REQUIREMENTS OF SECTION 52.15(g)(2)

A. Standard of Review

Under 47 C.F.R. § 1.3, the Commission may waive its rules for good cause shown.[12] When deciding whether to grant a waiver, the Commission may take into account considerations of hardship, equity, or more effective implementation of overall policy on an individual basis.[13] Waiver of the Commission's rules is appropriate where (i) special circumstances warrant a deviation from the general rule, and (ii) such deviation will serve the public interest.[14]

[11] A recent APCO white paper on 9-1-1 apps emphasizes that like the existing 9-1-1 system for voice calls, 9-1-1 solutions for apps need to be "robust, secure, and reliable." APCO International, *The Status of 9-1-1 Apps*, at 8 (Apr. 27, 2015), http://appcomm.org/wp-content/themes/directorypress/thumbs/WhitePaper_911Apps.pdf. APCO's white paper also notes that "knowledge of the 9-1-1 system, public safety, and emergency response is critical," and that a "common interface for the PSAP is going to be essential," because PSAPs cannot monitor a separate interface for each app. *Id.* at 9–10. Similarly, NENA emphasizes that apps "must not interfere with the handset's ability to place a voice 9-1-1 call to the local authority." NENA White Paper at 3.

As described below, Onvoy Spectrum is actively engaging with APCO, NENA, and other 9-1-1 industry groups to ensure that its 9-1-1 solution meets or exceeds these guidelines.

[12] 47 C.F.R. § 1.3.

[13] *Ne. Cellular Tel. Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

[14] *NetworkIP, LLC v. FCC*, 548 F.3d 116, 125–28 (D.C. Cir. 2008); *Ne. Cellular*, 897 F.2d at 1166.

B. Special Circumstances Warrant a Deviation from the General Requirement

As discussed above, waiver of the Commission's requirements is appropriate if special circumstances warrant a deviation from the general rule.[15] In this case, special circumstances strongly support a waiver of the requirements of 47 C.F.R. § 52.15(g)(2). Pursuant to its statutory authority, the Commission has designated Neustar to "administer [portions of] telecommunications numbering and to make such numbers available on an equitable basis."[16] Specifically, the Commission has designated Neustar as the permanent *p*-ANI Administrator.[17] Pursuant to Neustar's role as *p*-ANI Administrator, Neustar releases *p*-ANIs to requesting entities, but only if they meet certain requirements, including those under 47 C.F.R. § 52.15(g)(2).

Section 52.15(g)(2) provides that an applicant for initial numbering resources, including *p*-ANIs, must "include in its application evidence that the applicant is authorized to provide service in the area for which the numbering resources are required."[18] The Commission has

---

[15] *Ne. Cellular*, 897 F.2d at 1166.

[16] 47 U.S.C. § 251(e)(1).

[17] *See In the Matter of Numbering Policies for Modern Communications*, 28 F.C.C. Rcd. 5842, 5885 (Apr. 18, 2013) ("In March 2012, Neustar's Pooling Administrator assumed the responsibilities of the permanent p-ANI Administrator, also known as the Routing Number Administrator (RNA). Upon implementation of the new permanent p-ANI administrator, entities that had been providing p-ANI resources to others, or that had been maintaining their own inventory of p-ANIs, had to transition administration and control of formerly assigned p-ANIs to the RNA."); *see also* Letter from Thomas J. Navin, Chief, Wireline Competition Bureau, FCC, to Thomas M. Koutsky, Chair, North American Numbering Council, and Ms. Amy L. Putnam, Director, Numbering Pooling Services, Neustar, Inc., at 2 (Sept. 8, 2006) (assigning Neustar as the Interim RNA for the p-ANI codes used for routing emergency calls); Letter from Thomas J. Navin, Chief, Wireline Competition Bureau, FCC to Thomas M. Koutsky, Chair, North American Numbering Council, at 1 (June 28, 2007) (designating the entity serving as the pooling administrator also to serve as the Routing Number Authority).

[18] 47 C.F.R. § 52.15(g)(2).

interpreted this "evidence" to require either (i) a Commission license or (ii) a State CPCN.[19] Onvoy Spectrum already satisfies this requirement, since it holds a Commission license to use spectrum at 3650–3700 MHz (in addition to having obtained any required registrations in each State in which it intends to operate).[20] Section 52.15(g)(2) also requires evidence that "the applicant is or will be capable of providing service within sixty (60) days of the numbering resources activation date."[21] Neustar has rejected Onvoy Spectrum's request for *p*-ANIs because, unlike in the trial described above, Onvoy Spectrum does not have a registered cellular tower in place in the jurisdiction for which it is requesting *p*-ANIs. Neustar evidently uses that fact to deny Onvoy Spectrum access to *p*-ANIs because the company is not "capable of providing service" as required by Section 52.15(g)(2).[22]

Neustar's cellular tower requirement to show the requisite capability under Section 52.15(g)(2) is inapposite in this context. As detailed above, Onvoy Spectrum's solution requires *p*-ANIs from Neustar, but is specifically for use by non-voice devices that do not (or, depending on the device, cannot) connect to cellular towers. Neustar's local cellular tower requirement is apparently based on the sensible notion that in a standard wireless context, the only providers that require access to numbering resources for a given location are those that have a cellular tower and are therefore "capable of providing service" in that location. But given that Onvoy Spectrum's solution does not rely on a cellular connection or on cellular tower data to provide location information to PSAPs, the tower requirement imposes an unnecessary burden.

---

[19] *Numbering Policies for Modern Communications et al.*, Report and Order, 30 FCC Rcd. 6839, 6880, ¶ 83 (June 22, 2015) (*Numbering Order*).

[20] *See* note 6, *supra*.

[21] 47 C.F.R. § 52.15(g)(2).

[22] *See* Exhibit B, Email from Diane Calhoun, *p*-ANI Administrator, Neustar, Inc., to Kara Thielen, Onvoy Spectrum (June 9, 2016).

As noted above, Onvoy Spectrum has exhausted alternative ways to implement its proposed solution in light of this tower requirement. One possible option is to use VoIP *p*-ANIs, but that approach does not work for all PSAPs and for those PSAPs which cannot rebid a VoIP *p*-ANI it would lead to inferior location information. Another possible option is for Onvoy Spectrum to register what are essentially paper towers solely to meet the regulatory requirement (as it did in the Nebraska test described above). But that approach is as infeasible from a business perspective as it is wasteful; it would cost the company approximately $45 million dollars and 13,500 working days for Onvoy Spectrum employees with no accompanying benefit to anyone.[23]

Indeed, a number of the benefits of Onvoy Spectrum's solution, which are described below, are available precisely because Onvoy Spectrum's system need not have any connection to cellular towers. In this context, it is both counterproductive and wasteful to impose a requirement that Onvoy Spectrum register a cellular tower in each county in which it seeks to operate. In addition to wasting Onvoy Spectrum's time and money to register and erect towers that will never be used, the tower requirement wastes the Commission's time in processing applications for each of these towers.[24]

---

[23] *See* Nelson Declaration, ¶¶ 4–5. The Commission imposes several requirements for licensees to register and operate towers in the 3650–3700 MHz band. *See, e.g.*, 47 C.F.R. § 90.1307(a) ("A licensee cannot operate a fixed or base station before registering it under its license . . . ."); *id.* § 90.1319(d) (Licensees should examine the FCC's tower database "before seeking station authorization, and make every effort to ensure that their fixed and base stations operate at a location, and with technical parameters, that will minimize the potential to cause and receive interference."); *id.* § 90.1321 (power and antenna limits); *id.* § 90.1331 ("Licensees installing equipment in the 3650–3700 MHz band should determine if there are any nearby Federal Government radar systems that could affect their operations."); *id.* § 90.1335 (exposure requirements).

[24] *See, e.g.*, 47 C.F.R. § 17.4(a) (requiring registration of certain antenna structures with the FCC); 47 C.F.R. § 1.1307 (rules for certain facilities, including antennas that "may require further Commission environmental processing").

The successful trial tests conducted by Onvoy Spectrum confirm that establishing the requisite service capability via a cellular tower is not necessary, as Onvoy Spectrum has registered a tower (due to the requirements of Section 52.15(g)(2)) but does not have a permanent cellular tower in place in the jurisdiction where the trial was conducted. More importantly to the Commission's public interest analysis, the trial test shows that this new technology can *improve* public safety by bringing the millions of non-voice devices into the 9-1-1 ecosystem without requiring PSAPs to install new hardware or software, without requiring PSAPs to change operating procedures, and without placing additional burdens on the PSAPs or emergency network.

In assessing this or similar waiver requests, we respectfully suggest that the Commission apply the following criteria:

- Waiver applicant (directly or through a commonly owned affiliate) has existing interconnection agreements in each State where it would obtain a *p*-ANI.
- Waiver applicant connects directly or indirectly to the Selective Router serving a PSAP.
- Waiver applicant has registered in each State that requires registration as a wireless provider.
- Waiver applicant has a Commission CMRS license.
- Waiver applicant has demonstrated the need for waiver via a successful trial.
- Waiver applicant's proposed solution augments, but does not replace or adversely affect, existing 9-1-1 infrastructure.

These criteria serve the purpose of ensuring only qualified applicants will be able to access *p*-ANIs through a waiver and focusing the Commission's attention on those elements that are meaningful in today's rapidly evolving E911 environment.

C. The Waiver Will Serve the Public Interest.

As described above, Onvoy Spectrum's innovative solution to connecting devices operating in a data-only mode to the 9-1-1 system with location accuracy is impossible without access to Neustar's *p*-ANI system, but access to that system is currently foreclosed to Onvoy Spectrum by the local cell tower requirement under Section 52.15(g)(2). Onvoy Spectrum's request for waiver of this specific technical requirement is squarely within the public interest because it would lead to benefits for OTT providers, PSAPs, and the entire emergency calling ecosystem, with no accompanying downsides.

For OTT providers or app developers, Onvoy Spectrum's solution provides a simple software solution, known as a Software Development Kit (SDK), that abstracts the complexity of connecting to PSAPs away from the app developers that are generally not familiar with the 9-1-1 system. This SDK will support obtaining location from numerous sources including GPS, commercial SSID location augmentation, and even in-building beacons. Unlike VoIP-based location, this solution does not require the app or its users to input their address, which reduces misrouting and address normalization issues. And precisely because the system is not tower-based, it removes any tie-in to technology limitations arising from using those towers to generate often imprecise location information. Instead, location updates can be provided over any network regardless of what kind of tower is nearby—WiFi, 3G, or LTE—and even if there are no cellular towers in the vicinity. And the system is easily extensible for data augmentation or further improvements as technology improves.

For PSAPs, Onvoy Spectrum's solution similarly reduces the complexity of connecting to a wide variety of OTT providers or app developers away from the PSAPs. Instead of having to interface with numerous OTT providers or app developers, PSAPs benefit from one-stop-shop integration with Onvoy Spectrum, a company that is knowledgeable in this space and already engaged with PSAPs and the broader emergency services community. From the PSAPs' perspective, these calls will be received into their systems just like any other wireless call (except with real-time, accurate location information as opposed to tower information), with no requirement for special equipment or CPE upgrades. Onvoy Spectrum's system also allows for text-to-9-1-1 (SMS or MMS) capability via an existing Test Control Center (TCC), and can act as a TCC for PSAPs that do not have an existing TCC relationship. Finally, using current technologies, PSAPs often receive calls associated with a location that is not within their PSAP area. In these circumstances, the PSAP transfers the call to the correct PSAP, but this transfer invariably does not include the associated location information. Onvoy Spectrum's solution solves this problem as well by continuously updating the location from the device and providing a higher level of accuracy at call routing time.

And, of course, there are benefits to the 9-1-1 ecosystem at large. Most importantly, Onvoy Spectrum's solution enables non-voice devices—some of which cannot currently connect to the 9-1-1 system at all—to fully utilize emergency calling with improved location delivery and accuracy. It does so by leveraging existing infrastructure as opposed to imposing additional costs on the system. Nor would access to *p*-ANIs by Onvoy Spectrum's solution contribute to number exhaust. As the Commission recently observed, because "p-ANIs are 'non-dialable' numbers with unique technical characteristics that make them different from" other numbers, granting VoIP Positioning Center (VPC) providers (including Onvoy Spectrum) access to *p*-

ANIs "would not affect the pool of 'dialable' numbers and would thus not affect number exhaust."[25]

The Commission has a legitimate interest in controlling which entities can access numbering resources, and on that basis recently declined to adopt a proposal to provide blanket, nationwide authorizations for VPC providers to access *p*-ANIs.[26] While the Commission's recent amendments to Section 52.15(g)(2) addressed the concerns of VPC providers that are unable to obtain a State certificate, and lack a Commission license, those amendments did not account for Onvoy Spectrum's situation, where the provider already has a Commission license but does not satisfy the local cell tower requirement imposed by Neustar pursuant to the "capable of providing service" portion of the Commission's rule.[27] Onvoy Spectrum is not asking the Commission to revisit its recent decision to not adopt a blanket authorization. Instead, having exhausted alternative solutions, Onvoy Spectrum is submitting this waiver petition since the waiver process is particularly well-suited to this situation. In the context of reviewing a waiver request, the Commission can assess the facts and circumstances of each applicant using the criteria described above to establish that they are indeed able to provide the proposed service notwithstanding the fact that the applicant does not meet the traditional requirements for a CMRS provider to be capable of providing service in a given jurisdiction. As illustrated by the successful trials described above, Onvoy Spectrum has established that it can provide 9-1-1

[25] Numbering Order at ¶ 87.

[26] *Id.* at 6881, ¶ 84 (rejecting request from TCS to provide blanket authorization for VPCs).

[27] *See* 47 C.F.R. § 52.15(g)(2) ("A provider of VoIP Positioning Center (VPC) services that is unable to demonstrate authorization to provide service in a state may instead demonstrate that the state does not certify VPC service providers in order to request pseudo-Automatic Numbering Identification (p-ANI) codes directly from the Numbering Administrators for purposes of providing 911 and E911 service.").

services without cell towers in a given jurisdiction, such that the waiver of this requirement is justified in these circumstances.

III. CONCLUSION

For the reasons stated herein, compliance with certain requirements of 47 C.F.R. § 52.15(g)(2) on Onvoy Spectrum should be waived. Grant of this waiver is in the public interest because it would enhance safety by enabling mobile OTT providers to be offered a 9-1-1 solution for consumers using non-voice devices.

Respectfully submitted,

Gerard J. Waldron
David J. Bender
COVINGTON & BURLING LLP
ONE CITYCENTER
850 10th St., NW
Washington, D.C. 20001
(202) 662-6000

Counsel for Onvoy Spectrum, LLC

December 19, 2016

EXHIBIT A

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Numbering Policies for Modern Communications	)	WC Docket No. 13-97
	)	
IP-Enabled Services	)	WC Docket No. 04-36
	)	
Telephone Number Requirements for IP-Enabled Service Providers	)	WC Docket No. 07-243
	)	
Numbering Resource Optimization	)	CC Docket No. 99-200
	)	
Framework for Next Generation 911 Deployment	)	PS Docket No. 10-255

DECLARATION OF JUSTIN NELSON

1. My name is Justin Nelson. I am the Chief Information Officer of Onvoy, LLC; in this capacity I provide overall technical leadership as well as management of the key personnel responsible for building and delivering the emergency solution developed by Onvoy Spectrum.

2. I have 16 years of experience in building, testing, and implementing telecommunications solutions for emergency services purposes, including past experience building a VoIP Positioning Center (VPC) as well as NG9-1-1 systems such as an Emergency Services Routing Proxy (ESRP), Location Validation Function (LVF), and an Emergency Call Routing Function (ECRF). Other individuals on my team at Onvoy Spectrum have similar experience with emergency services solutions.

3. As part of my duties at Onvoy Spectrum, I have overseen the development of a new solution to allow users of non-voice devices to reach emergency services and have their location reported to PSAPs in a reliable and accurate fashion.

4. Due to current Commission rules as interpreted by Neustar, Onvoy Spectrum is required to register a tower in each jurisdiction where it wishes to obtain *p*-ANIs in order to provide its new solution.

5. Onvoy Spectrum has estimated that it would need to build approximately 4,500 towers at a cost of approximately $10,000 per tower to meet the current requirements to obtain *p*-ANIs in each of the jurisdictions in which it seeks to operate, for a total cost of approximately $45 million dollars.

6. In addition, each tower requires approximately three full working days for an Onvoy Spectrum employee to identify suitable tower locations, process the tower application, and register the tower with the Commission.

7. On August 2, 2016, I oversaw Onvoy Spectrum's successful completion of a trial test of this new solution with the Lincoln PSAP in Lancaster Country, Nebraska (FCC PSAP ID: 4619). While Onvoy Spectrum has registered a tower with the Lincoln PSAP (to comply with Neustar's requirements), Onvoy Spectrum has not actually built any tower equipment in Lancaster County, Nebraska, and no cellular tower was used to complete the test. The test lasted approximately 8 minutes.

8. To conduct the test, I directed an Onvoy Spectrum engineer, Jason Shugart, to initiate a test call from a mobile device running the Android operating system. The device was non-voice—with no connection to CMRS service—and initiated the call using a WiFi connection. The call was successfully routed by Onvoy Spectrum's MPC across the Selective Router connection using a *p*-ANI obtained from Neustar to reach the Lincoln PSAP. The Lincoln PSAP's CPE queried the static ALI database, which in turn located the shell record that Onvoy Spectrum previously loaded to point to our dynamic ALI database. Onvoy

Spectrum's MPC replied to the CPE with an ALI record. And the Onvoy Spectrum engineer confirmed with the PSAP operator that the ALI record contained the correct call-back number as well as the location of the device reported at call-time, which was accurate within 100 feet of the actual device location.

9. At the 60-second interval of the call, the PSAP CPE also successfully performed a rebid to the Onvoy Spectrum dynamic ALI database to obtain updated location data using the same process described above. At this point, the location returned by Onvoy's MPC to the PSAP was accurate within 30 feet of the actual device location.

10. From the PSAP operator's perspective, this call was handled just like any other Phase 2 Wireless E911 call, except with real-time location data in place of tower location information. The operator did not have to have any additional training or do anything special to successfully complete the test call. Instead, the call was received and handled at the PSAP just like any other wireless emergency call would be, which minimizes the need for additional training at the PSAP operator level in order to implement Onvoy Spectrum's solution.

11. Between December 7 and December 13, 2016, Onvoy Spectrum successfully conducted similar trial tests in Adams County, Nebraska and Jefferson County, Nebraska. As with the prior test, all of the testing results were positive and all information was correctly transmitted as expected.

12. Based on my experience in this field, I believe these tests illustrate that Onvoy Spectrum's solution to connecting non-voice devices to emergency services with accurate location information works, and does not require any connection to a cellular tower to function.

13. Onvoy Spectrum is in the process of implementing additional testing in other jurisdictions, including Hennepin County, Minnesota in the first quarter of 2017. We also plan to begin testing in Bexar County, Texas in the first quarter of 2017.

14. Onvoy Spectrum's test plan includes testing of trunk defaults, selective routing, calling back subscribers, correcting ALI displays, and Phase II rebidding, among other aspects.

15. Throughout the testing process, Onvoy Spectrum is engaging with relevant state emergency services regulators in addition to industry groups like NENA, APCO, and NASNA. Our testing process includes collaboration with PSAPs in each local jurisdiction that we plan to offer services to develop the appropriate testing and implementation parameters for each jurisdiction.

16. Once Onvoy Spectrum's solution is implemented in a jurisdiction, Onvoy Spectrum also plans to provide ongoing live customer service to the 9-1-1 system for instances where network changes could affect 9-1-1 calls (e.g., service area adjustments, major switch or network reconfigurations). In this capacity, Onvoy Spectrum plans to operate as a single point-of-contact for the PSAPs for calls from any Onvoy Spectrum customer.

17. Via the testing and implementation process, Onvoy Spectrum is committed to integrating feedback from the PSAPs and other interested parties to ensure that our solution meets the needs of each local jurisdiction and the broader 9-1-1 ecosystem to deliver stable, reliable, and accurate 9-1-1 call routing.

Signed: /s/ Justin Nelson

Justin Nelson

Date: December 19, 2016

EXHIBIT B

From: Kara Thielen <Kara.Thielen@onvoy.com>
Subject: Fw: Need license and registration documentation 402-NE-183786
Date: July 22, 2016 at 1:03:20 PM MDT
To: Justin Nelson <Justin.Nelson@onvoy.com>
Cc: Jason Shugart <Jason.Shugart@onvoy.com>

From: Calhoun, Diane (Mueller) <Diane.Calhoun@neustar.biz>
Sent: Thursday, June 9, 2016 8:35 AM
To: Kara Thielen
Cc: Weber, Florence
Subject: RE: Need license and registration documentation 402-NE-183786

Good morning Kara,

I did a search yesterday on the FCC website for your registration for this PSAP 4622 – Lancaster County, Nebraska you are requesting p-ANIs for.
At this time there is no registration available for this county in Nebraska.

On your Part 1 form this is what you typed in:

NPA: 402
Selective Router CLLI: LNCLNEXL1ED
FCC PSAP ID: 4622
PSAP Name: Lincoln-Lancaster 911
PSAP State: NE
PSAP County/Municipality: Municipality

The PSAP County/Municipality should have been **Lancaster County** rather Municipality.

Therefore, I am denying this request until there is a registration in place. Once the registration is approved and available on the FCC website, then you can go back and request a new order for Lancaster County, Nebraska. You will need to send me the approved registration as well as the FCC license at the time of requesting your p-ANIs.
Without this information, I cannot approve the request.

Thank you,

Diane Calhoun
Neustar, Inc. /p-ANI Administrator
Office: +1 925 363 8707 **Fax:** +1 925 363 7667 **/** diane.calhoun@neustar.biz **/** www.nationalpani.com **/** www nationalpooling.com **/** www.neustar.biz

---

From: Calhoun, Diane (Mueller)
Sent: Wednesday, June 08, 2016 8:08 AM
To: Kara Thielen (Kara.Thielen@onvoy.com)
Cc: Weber, Florence
Subject: Need license and registration documentation 402-NE-183786
Importance: High

Good morning Kara,

Your requests is ready to process, however I need you to send me your FCC license and registration documents for the fixed site and/or base station for the area in which you are requesting p-ANIs.

Registration document can be found by pulling up the license on the FCC ULS, then go to the Admin tab, under Applications, click on file number (with a notation of Register Link/Location), then go to the Locations tab, look to see that the area is covered in the “County/Borough/Parish” section, then click on the Printable Page link for the acceptable format.

Thanks,

Diane Calhoun
Neustar, Inc. /p-ANI Administrator
Office: +1 925 363 8707 **Fax:** +1 925 363 7667 **/** diane.calhoun@neustar.biz **/** www.nationalpani.com **/** www nationalpooling.com **/** www.neustar.biz

The information contained in this e-mail message is intended only for the use of the recipient(s) named above and may contain confidential and/or privileged information. If you are not the intended recipient you have received this e-mail message in error and any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately and delete the original message.